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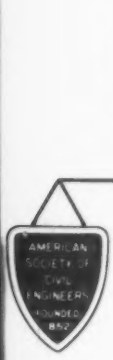

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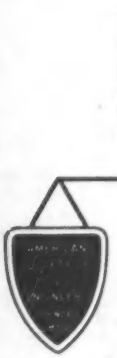

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1979 ASCE Salary Survey

Report by the Committee on Employment Conditions of the Professional Practice Division

Introduction

This is the 15th in a series of biennial salary surveys conducted by ASCE. The earliest ASCE salary report on record was published in December 1914. Salary surveys were conducted at varying intervals until 1950 when it was decided to conduct them on a biennial basis. The results of these biennial surveys have been published in the following reports:

1951—*Civil Engineering*, August 1951*
1953—*Civil Engineering*, July 1953*
1975—Proc. Paper 761, August 1955*
1957—Proc. Paper 1347, *Journal of the Board of Direction*, August 1957*
1959—Proc. Paper 2188, *Journal of Professional Practice*, September 1959*
1961—Proc. Paper 3146, *Journal of Professional Practice*, May 1962*
1963—Proc. Paper 3897, *Journal of Professional Practice*, May 1964*
1965—Proc. Paper 4820, *Journal of Professional Practice*, May 1966*
1967—Proc. Paper 5984, *Journal of Professional Practice*, June 1968*
1969—Proc. Paper 7500, *Journal of Professional Practice*, September 1970*
1971—Proc. Paper 9025, *Engineering Issues—Journal of Professional Activities*, July 1972*
1973—Proc. Paper 10450, *Engineering Issues—Journal of Professional Activities*, April 1974
1975—Proc. Paper 12090, *Engineering Issues—Journal of Professional Activities*, April 1976
1977—Proc. Paper 14110, *Engineering Issues—Journal of Professional Activities*, October 1978

Note.—Discussion open until December 1, 1980. To extend the closing date one month, a written request must be filed with the Manager of Technical and Professional Publications, ASCE. This paper is part of the copyrighted Issues in Engineering—Journal of Professional Activities, Proceedings of the American Society of Civil Engineers, Vol. 106, No. EI3, July, 1980. Manuscript was submitted for review for possible publication on March 25, 1980.

*Out-of-print, no longer available from ASCE. Copies can be obtained from the Engineering Societies Library, 345 East 47th St., New York, N.Y., 10017.

Current scheduling of the ASCE salary survey reflects conditions for civil engineers in the latter part of the odd-numbered years. In the middle of the alternate, even-numbered years, the Engineering Manpower Commission (EMC) of the American Association of Engineering Societies (AAES—formerly the Engineers Joint Council, or EJC) collects basic salary information on engineering graduates for its biennial reports on the "Professional Income of Engineers." The ASCE salary information is reported on the basis of the Society's professional grade descriptions for civil engineering positions as described herein. Thus, salary is equated to level of responsibility or expertise, or both. The EMC reports salary data on the basis of years since receiving a B.S. degree.

Six general employment categories were surveyed: (1) Consulting firms; (2) construction firms; (3) state departments and agencies (transportation, highway, public works, etc.); (4) municipalities, regional authorities and counties; (5) railroads, utilities and industries; and (6) education.

The ASCE professional grade descriptions, used in this survey, were as revised in 1975. The revisions were developed jointly by the Committee on Employment Conditions (COEC) and the Professional Employment Committee of the National Society of Professional Engineers (NSPE). Both societies are currently using the same grade classification system. The descriptive material—i.e., general characteristics, direction received, typical duties and responsibilities, etc.—is the same as that used in the 1977 survey. A summary chart of these grade descriptions can be seen in Appendix II. The questions included in the 1979 survey were also the same as those in the 1977 survey. This will allow easy comparisons between the two reports.

Summary of Results

Evaluation of the 1979 ASCE salary survey showed that in the 2-year period since the 1977 ASCE salary survey, the combined average of median entrance salaries of all grades in the five major employment categories, excluding education, increased 14.9% from $22,103 to $25,402 (derived from Tables 5–9 in Appendix I). Comparable increases of the median entrance salaries over the past 10 years are summarized in Table 1.

The percentages reported for 1973 and 1971 showed a marked decrease from the amount reported in 1969 (15.4%). This was at least partially attributed to the wage and price controls imposed by the Federal government during part of that period. The large increase reported for the 2 years ending in 1975 reflects a rebound in the economy following the removal of wage and price controls. The periods ending 1977 and 1979 (13.6% and 14.9%, respectively) mark the

TABLE 1.—Average Increase of Combined Median Entrance Salaries

Entrance salaries (1)	Year 1969 (2)	1971 (3)	1973 (4)	1975 (5)	1977 (6)	1979 (7)
Increase, as a percentage	15.4	11.4	8.3	19.9	13.6	14.9

largest increase in salaries for any 4-year period during the past 16 years. It is believed that this large and steady increase can be attributed to a growing concern, within the engineering profession, for low salaries as well as double-digit inflation.

The effect of inflation on salaries can also be seen by comparing the 6-year salary period (1975, 1977 and 1979 surveys), which showed an annual increase of 8.07% in the median salary, with the 6-year survey period prior to 1975, which showed an annual increase in median salary of only 5.8%.

The largest gains in the average of median entrance salaries for the period 1977 through 1979 (see Tables 5–10) came in the railroads, utilities and industries category at 18%, followed by: Construction firms, at 17.9%; consulting firms, at 15.7%; state agencies at 13.1%; and municipalities and counties, at 9.0%. Consulting firms showed the largest gain in the 2-year period ending in 1977 with 16.8%. Municipalities showed the largest gain in the 2-year periods ending in 1975 and 1973 with 25.5% and 12.4%, respectively. In 1977 the lowest average median entrance salary increase was in the construction industry at 10.7%. The lowest increase (15.0%) in the 2-year period ending in 1975 was recorded in the state agency category, perhaps a result of a general cutback in highway and transportation funding. In the 2-year period ending in 1977, state agencies increased the average of median entrance salaries by 14.6%; railroads, utilities, and industries increased by 13.8% and municipalities showed a gain of 11.4%. In the 2-year period ending in 1975, the railroads, utilities, and industries category increased the average of median entrance salaries by 22.4%; consulting and construction median entrance salaries fell in the middle range of increases with 17.5% and 19.0%, respectively.

The average of combined median entrance rates for the five major employment categories (education excluded—see Table 11) went from $19,794 in 1977 to $22,240 in 1979, an increase of 12.4%. The largest increase in the combined median entrance rates (all grades 12.4%) over the 2-year period ending in 1979 occurred in the railroads, utilities, and industries category, 17.4%; followed by the state agency, 17.1%; consulting, 15.3%; construction firms, 6.5%; and municipalities, with 6.3%.

The 1979 median entrance salary rates for Grade I/II in the employment categories surveyed (excluding education) are summarized as follows:

1. Consulting firms	$14,040
2. State departments and agencies	$14,165
3. Construction firms	$14,460
4. Municipalities, counties, and regional authorities	$15,180
5. Railroads, utilities, and industries	$17,220

The average percent increases of combined median entrance salaries for each grade level over the current 2-year period are reported in Fig. 2 (see Appendix I). The average of median entrance salary rates for Grade I/II with education excluded (intended to represent starting salaries for civil engineering graduates) increased from $13,237 to $15,013 or 13.4% over the same 2-year period. Increases for the 2-year periods ending in 1977, 1975 and 1973 were 12.9%, 16.6% and 6.6%, respectively.

General Background

As in previous years, the data presented in this report was obtained from representative sources on a sampling basis. Questionnaires were mailed in late August of 1979. They were essentially the same as those used for the 1977 survey. This year's special questions, sought information on: (1) Employer knowledge, opinion, and use of ASCE's *Manual 55, Guide to Employment Conditions for Civil Engineers*; (2) supply and demand of civil engineers; (3) the education level of employees; and (4) professional registration. Results of these questions are noted elsewhere in this report. The survey form and other material sent to employers can be seen in Appendix II. The data contained in the salary report is solely an indication of current salary rates and benefit levels and should not be considered as recommended salary scales.

Data in the 1979 report are based on returns received from 894 organizations representing 49,527 individuals. As a comparison, the 1977 report was based

TABLE 2.—Organizations and Individuals per Employment Category

Employment category (1)	Number of organizations (2)	Number of individuals (3)
Private employers		
Consulting firms	443	12,533
Construction firms	67	4,005
Railroads, utilities, and industries	45	6,085
Public employers		
State departments and agencies[a]	90	22,807
Municipalities, counties, and regional authorities	180	2,927
Education		
12-month contract	7	122
9-month contract	62	1,049
Total	894	49,527

[a]Transportation, highway, public works, etc.

on returns received from 736 organizations representing 40,870 individuals. The 1975 report included data from 1,031 organizations representing 53,354 individuals; similarly for 1973, there were 798 organizations and 40,218 individuals represented. The distribution of organizations and individuals by employment category is summarized in Table 2.

Presentation of Data

Salary data for each employment category surveyed are reported in Tables 5–10, found in Appendix I. The data include the median, middle 50% range, and total range of the entrance and maximum salary rates reported for each grade. Entrance and maximum salary medians are presented in Figs. 4–8 which accompany the aforementioned tables. Curves for the 1977, 1975, and 1973 entrance medians are also provided to show growth trends. Fig. 2 shows the

percent changes of the entrance salary medians for all employment categories combined by grade. Table 11 presents a comparison of combined salary rates (all grades) for each employment category.

The median is that number with 50% of the samples lower and 50% higher. The middle 50% is determined by eliminating the upper 25% and the lowest 25%. The total range represents the lowest and highest figures reported in each grade. No attempt was made to weight medians according to the number of employees represented by each salary rate reported.

Many of the employers who responded to this survey have grade classification systems of their own, requiring interpolation to equate them to the ASCE professional grade descriptions. It is possible, therefore, that widely divergent figures reported in the total ranges are the result of misinterpretation of definition rather than marked disparity in salary scales. However, the range represented by the middle 50% may be assumed to reflect a reasonably accurate relationship of salary rates. Comparison of salary data reported anonymously by individual members of the Society in the 1976 survey of the profession with 1975 and 1977 salary survey data provided by employers indicates this assumption has been accurate in the past. Two values are shown for the number of individuals represented in each grade to account for those employers who reported only an entrance or maximum salary rate instead of both.

Federal agencies were not surveyed for this report. With few exceptions, the salary rates of the United States Civil Service Commission are standard throughout the country. New rates effective October 1979 for appropriate G.S. grades are shown in Table 13. Equivalent ASCE grades are indicated in the summary.

In addition to the survey response from engineering educators (see Table 10) data from the publication "Salaries of Engineers in Education, Special Report, 1978" prepared by the Engineering Manpower Commission of the Engineers Joint Council (now the American Association of Engineering Societies—AAES), is included in Table 12 of this report for comparative purposes.

Regional Relationships

A regional breakdown for each grade of every employment category surveyed is given in Tables 15–22. Table 23 gives a regional comparison of the median rates of all grades combined for each category. Table 4 establishes regional relationships of entrance salary medians for each ASCE grade (combined employment categories).

The accompanying map (Fig. 1) shows the geographical makeup of the six regions identified as: I—New England; II—Middle Atlantic; III—Middle West; IV—South; V—West; and VI—Far West.

Salary-Related Benefits

Data from the 1979 survey indicate that the value of fringe benefits, as a percentage of annual base payroll, remained relatively constant over the 2-year period ending in 1979. This reflects a continuing trend over the past 6 years. The average of total fringe benefit costs reported for all employment categories combined (including a 12-month education category) amounts to 36.51% in 1979

up 2.11% from 1977. The comparable figures for the years 1971 through 1979 are summarized in Table 3. Benefits on which data were requested were basically the same as in the 1977 and 1975 surveys. Changes in 1975 included adding a separate category for military leave and jury duty, combining retirement income (previously pension plans) and deferred profit sharing, and eliminating the overtime category. A summary of the data obtained on benefits—i.e., the average cost of each as a percentage of base payroll and the number of employers reporting for each employment category—is given in Table 24.

From a review of the data, in previous surveys, it became apparent that data on benefits is more readily available and accurate as a percentage of annual payroll than in terms of dollars added. Therefore Table 25 was revised in the 1977 survey to reflect the average dollar value of annual incentive benefits by ASCE grade and employment classification.

Some editing of the data was necessary. Typical cases where problems arose in the reporting by employers included combining medical and life insurance into one rate or percentage (some combined all leave—i.e., vacation, holiday and sick leave—into one rate) or indicating too high a value in Category 7, social security, unemployment, and workmen's compensation taxes. These problems were corrected by dividing combined rates into equal portions in the

TABLE 3.—Average of Total Overall Benefits as Percentage of Base Payroll

Benefits (1)	Year 1971 (2)	1973 (3)	1975 (4)	1977 (5)	1979 (6)
Percentage of base payroll	30.92	29.55	28.97	34.4	36.51

former case and substituting N/A (not available) in the latter so as not to distort any one category.

Average total cash compensation value for each ASCE grade are presented in Table 26 by employment category. These values were determined by adding data from Table 25 to average salary rates, defined as the average of entrance and maximum salary rates contained in Tables 5–10.

Employment Guidelines

Employers were asked to respond to 11 questions concerning the following:

1. *Manual 55, Guidelines to Employment Conditions for Civil Engineers.*
2. Legal support for professional liability.
3. Demand for civil engineers within the next 5 years.

Of all employers that responded:

1. 34.7% were familiar with *Manual 55*; 42.6% of the consultants were familiar with the manual. This was a decrease from the 1977 survey when the percentages were 40% and 52%, respectively.

2. 27.7% believed that *Manual 55* met the needs for better defining employment conditions; only 7.1% believed it did not. These percentages compare with 29.1% and 7.6% from 1977. The area indicated as most in need of further treatment was the recommended salary ranges.

3. 74.3% believed their employment conditions were similar to or better than the recommendations in Section 1—Professional Employment; 59.6% felt the same about Section 2—Professional Grade Descriptions. These percentages compare with 78.2% and 69.8% from the 1977 survey.

4. Only 46.6% felt that their salary ranges were similar to or better than those in Section 3—Recommended Salary Ranges; and 62.3% indicated a similar response for Section 4—Recommended Benefits. These percentages compare with 50.4% and 62.0% in 1977.

5. 43.4% of all employers have come to an understanding with their employees on their professional grade classification; only 14.4% indicated they use the ASCE grade descriptions for this purpose. These percentages compare with 40.3% and 14.1% in 1977.

6. 75.8% indicated they do provide legal support for their employees in the event of a professional liability claim, whereas 10.2% said they do not. A rather large segment of the sample, 14.0%, gave no answer, indicating the possibility that some are not sure of what their policy is on this matter. These percentages compare with 69.7%, 8.3% and 22.0% in 1977.

7. 57.3% anticipate that the demand for civil engineers will increase within the next 5 years, compared with 51.2% in 1977.

More detailed breakdowns of the answers received can be found in Tables 27–33.

Acknowledgments

The ASCE biennial salary surveys are conducted in conformance with Society Bylaws which commission the Committee on Employment Conditions to "collect, codify, and prepare for distribution such data as may be calculated to be of value to civil engineers, both employers and employees, in connection with proper classification of engineering positions and equitable compensation for services. . . ."

The large number of employer responses and employees represented in this report are due in no small measure to the efforts that many of the ASCE Sections throughout the country put into improving the mailing lists for their particular states.

The Committee on Employment Conditions is grateful to all who supplied the basic data that made this report possible. The continued heavy demand for copies of ASCE salary surveys is evidence of the high appraisal of these periodic analyses by civil engineering employers and employees alike.

Respectfully submitted,

Committee on Employment Conditions (COEC)

Oscar R. George, Chairman
Joseph E. Hardee
Michael R. Pender, Contact Member
Professional Practice Division,

Arlan H. Rippe
Donald A. Van Sickle
Robert L. Anderson
Joyce A. Padgett, Jr.
Will M. Heiser
Howard Simpson

Executive Committee (PRODEX)
Corresponding Members
James J. Bible
Robert L. Hall

APPENDIX I.—TABLES AND FIGURES

TABLE 4.—Regional Relationships (Ratio of Regional to National Entrance Salary Medians for Combined[a] Categories in Each ASCE Grade)

Region	Grade							
	I/II	III	IV	V	VI	VII	VII	IX
I	0.89	0.92	0.89	0.86	0.88	0.84	0.94	0.78
II	0.96	0.95	1.00	0.98	1.01	0.98	1.00	1.00
III	1.03	1.01	1.01	1.00	0.99	1.01	0.99	0.95
IV	0.98	0.95	0.93	0.94	0.94	0.96	0.97	1.00
V	1.00	1.00	1.00	0.98	0.98	0.96	1.00	0.89
VI	1.03	1.04	1.04	1.05	1.10	1.05	1.05	1.08

[a](1) Consulting firms; (2) construction firms; (3) state departments and agencies (transportation, highway, public works, etc.); (4) municipalities, counties and regional authorities; (5) railroads, utilities and industries; (6) education.

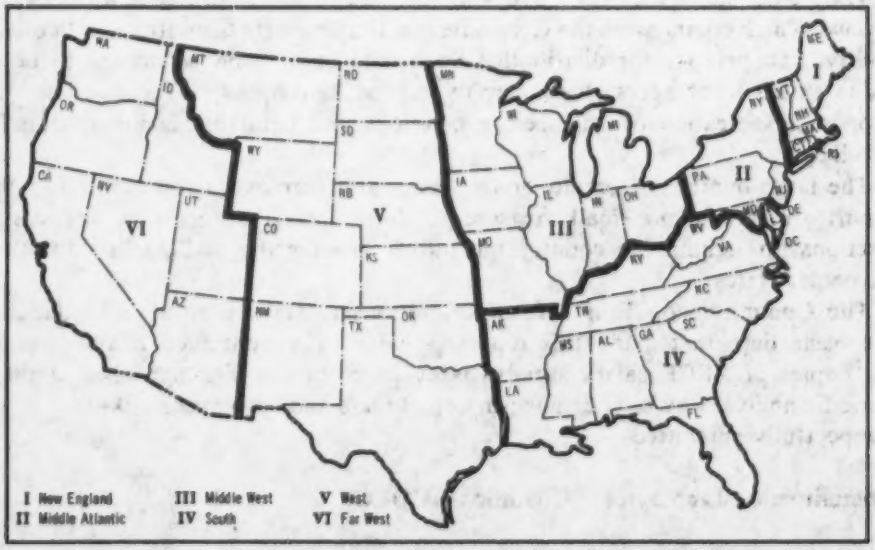

FIG. 1.—Six Regions Used for Comparative Purposes in This Study

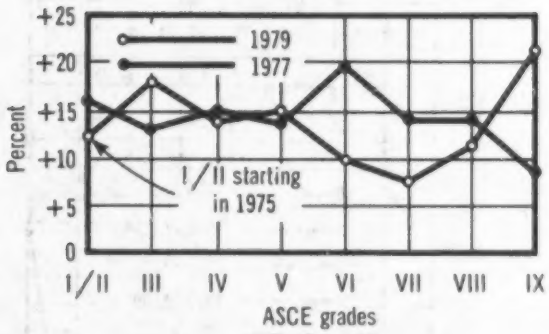

FIG. 2.—Change in Entrance Salary Medians for Combined Employment Categories, 1975–1977

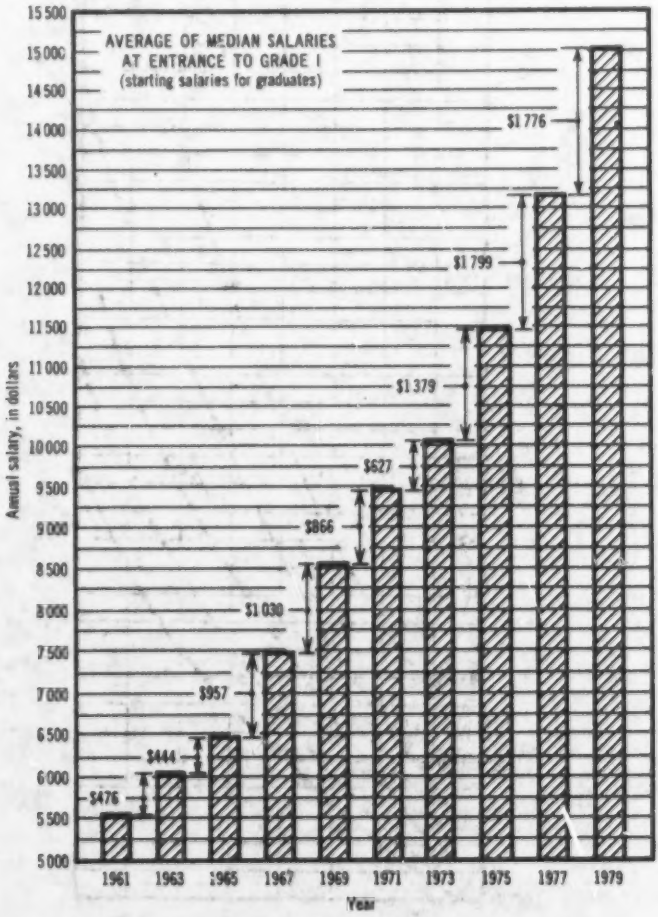

FIG. 3.—All Employment Categories Combined

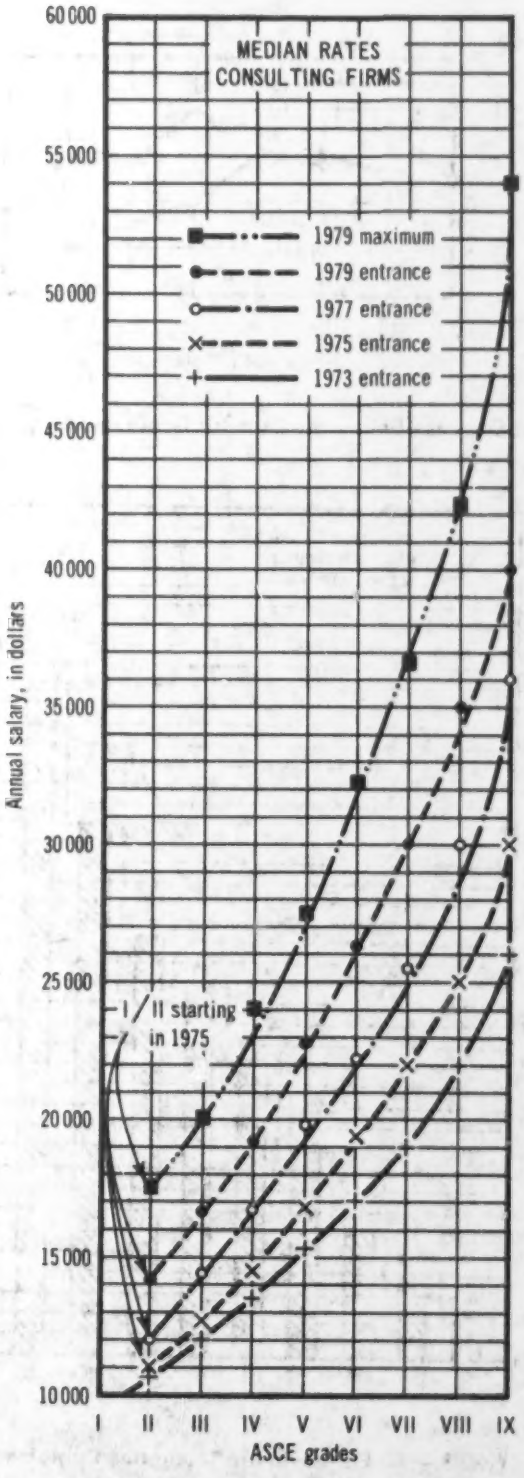

FIG. 4.—Median Salary Rates: Consulting Firms

TABLE 5.—Consulting Firms

ASCE grade (1)	Annual salaries, in dollars													
	ENTRANCE RATES							MAXIMUM RATES						
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range	
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)
I/II	2,416	14,040	+17.0	12,480	15,600	7,000	29,000	2,401	17,500	+16.7	15,500	19,000	8,000	28,500
III	2,151	16,800	+16.7	15,000	18,320	7,200	35,000	2,145	20,000	+14.9	18,000	22,500	12,200	50,000
IV	2,142	19,240	+15.4	17,680	21,420	8,000	38,700	2,138	24,000	+20.0	21,000	27,000	10,000	45,300
V	2,005	22,800	+15.4	20,000	25,095	10,000	45,300	2,006	27,842	+16.0	24,600	31,000	15,000	43,700
VI	1,537	26,310	+19.1	22,800	30,000	11,000	45,000	1,551	32,200	+17.1	28,000	36,000	13,000	52,000
VII	1,117	30,000	+17.7	25,100	34,000	12,000	50,400	1,112	36,600	+17.3	32,000	42,224	14,000	80,000
VIII	681	35,000	+16.7	30,000	40,600	14,000	80,000	700	42,300	+13.0	36,000	50,000	16,000	91,452
IX	484	40,000	+11.1	35,000	48,000	15,000	110,000	494	54,000	+15.4	44,815	70,000	28,000	130,000
Average	—	25,523	—	—	—	—	—	—	31,805	—	—	—	—	—

Note: Average of median entrance rates, all grades, in 1977 was $22,055; percent change 1977–1979 is +15.7%.

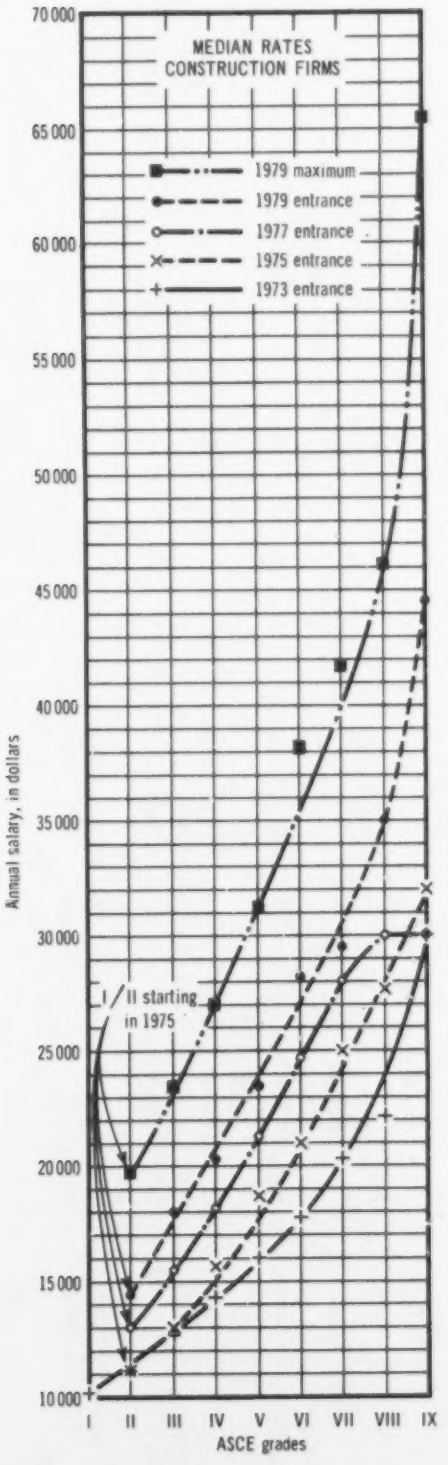

FIG. 5.—Median Salary Rates: Construction Firms

TABLE 6.—Construction Firms

ASCE grade (1)	Annual salaries, in dollars														
	ENTRANCE RATES							MAXIMUM RATES							
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range		
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)	
I/II	457	14,460	+11.2	13,000	16,000	8,100	30,000	455	19,920	+24.5	16,100	21,000	14,000	35,000	
III	447	18,000	+16.3	16,260	19,307	10,800	30,000	447	23,400	+17.0	21,300	25,000	15,000	35,000	
IV	798	20,280	+11.1	18,660	22,920	12,000	30,000	798	27,000	+12.5	23,820	30,000	18,000	36,400	
V	1,184	23,400	+9.4	18,000	25,000	12,600	32,000	1,185	31,200	+9.7	25,000	36,400	20,000	40,440	
VI	724	28,140	+12.7	24,879	33,300	16,200	40,000	726	38,186	+14.5	31,616	42,000	25,000	50,000	
VII	297	29,500	+5.4	25,000	34,000	20,000	45,000	297	41,964	+6.0	35,000	45,126	30,000	60,000	
VIII	70	35,000	+16.7	30,000	40,832	24,120	54,000	70	46,200	+15.5	40,200	50,700	30,000	75,000	
IX	28	44,756	+49.2	35,000	60,000	25,000	90,000	31	65,465	+37.9	50,000	86,000	33,000	250,000	
Average	—	26,692	—	—	—	—	—	—	36,666	—	—	—	—	—	

Note: Average of median entrance rates, all grades, in 1977 was $22,637; percent change 1977–1979 is +17.9%.

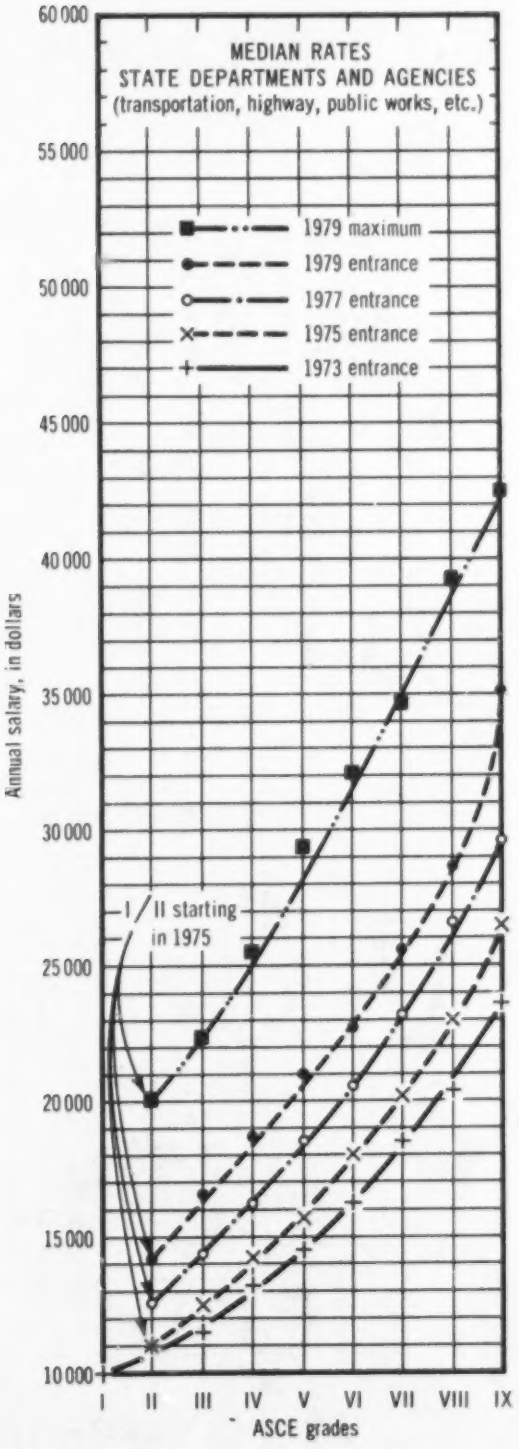

FIG. 6.—Median Salary Rates: State Departments and Agencies (Transportation, Highway, Public Works, etc.)

TABLE 7.—State Departments and Agencies (Transportation, Highway, Public Works, etc.)

ASCE grade (1)	Annual salaries, in dollars													
	ENTRANCE RATES							MAXIMUM RATES						
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range	
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)
I/II	3,610	14,165	+12.1	13,657	15,827	10,332	26,232	3,590	20,004	+15.8	18,072	22,020	13,879	36,540
III	5,965	16,756	+16.0	15,281	17,544	8,700	35,208	5,983	22,464	+16.6	20,699	25,080	12,600	42,336
IV	5,840	18,888	+16.2	17,220	20,243	13,800	37,932	5,840	25,512	+14.1	23,616	27,729	18,000	45,576
V	3,824	21,000	+13.4	19,068	23,087	15,588	40,812	3,824	29,448	+19.4	26,028	31,908	19,103	49,056
VI	2,107	22,956	+10.9	20,544	25,600	17,000	47,280	2,107	32,060	+17.0	28,008	35,952	20,684	56,844
VII	1,022	25,644	+10.5	23,064	29,206	17,576	54,756	1,022	34,677	+11.1	31,803	40,851	22,359	65,844
VIII	376	28,908	+8.6	26,100	32,604	17,680	60,444	381	39,322	+14.2	35,475	46,000	25,740	72,672
IX	63	35,078	+18.0	30,192	39,500	21,874	65,052	65	42,500	+6.9	38,520	50,088	30,000	78,216
Average	—	22,924	—	—	—	—	—	—	30,748	—	—	—	—	—

Note: Average of median entrance rates, all grades, 1977 was $20,269; percent change 1977–1979 is +13.1%.

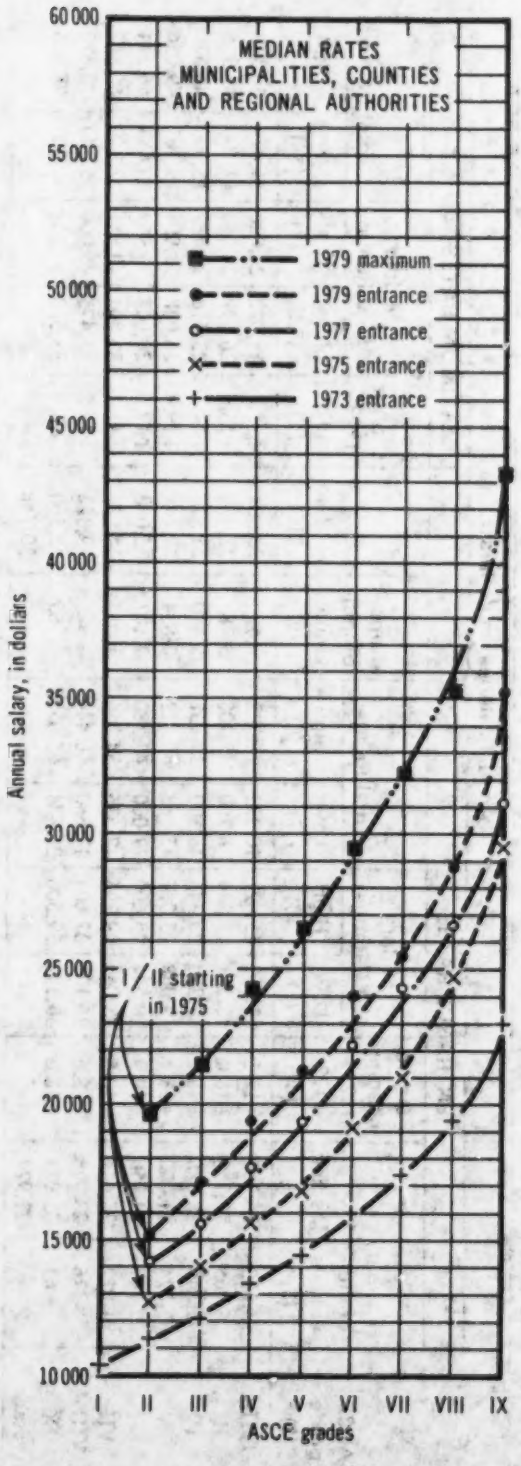

FIG. 7.—Median Salary Rates: Municipalities, Counties, and Regional Authorities

TABLE 8.—Municipalities, Counties, and Regional Authorities

ASCE grade (1)	Annual salaries, in dollars														
	ENTRANCE RATES							MAXIMUM RATES							
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range		
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)
I/II	582	15,180	+7.3	14,000	16,601	9,235	20,717	578	19,665	+12.3	18,000	21,276	11,273	25,544
III	566	17,041	+9.4	15,643	18,588	10,000	26,237	567	21,838	+9.3	20,253	23,412	15,000	28,860
IV	696	19,409	+9.2	17,100	20,899	11,356	29,243	701	24,400	+8.0	21,944	26,458	16,727	33,732
V	470	21,252	+9.5	18,792	23,170	15,324	32,244	469	26,769	+7.1	24,545	29,781	17,232	36,864
VI	285	24,000	+8.4	21,588	26,009	15,198	34,587	291	29,603	+10.0	26,457	32,700	18,200	44,900
VII	177	25,560	+5.3	22,110	29,627	17,532	41,542	182	32,460	+6.6	29,073	37,270	21,335	45,727
VIII	121	28,934	+8.6	25,000	32,460	20,439	50,353	124	35,214	+2.4	31,176	41,340	24,500	63,708
IX	30	35,183	+13.0	31,000	39,000	24,000	60,656	34	43,164	+5.6	37,920	51,000	31,000	75,377
Average	—	23,319	—	—	—	—	—	—	29,139	—	—	—	—	—

Note: Average of median entrance rates, all grades in 1977 was $21,389; percent change 1977–1979 is +9.0%.

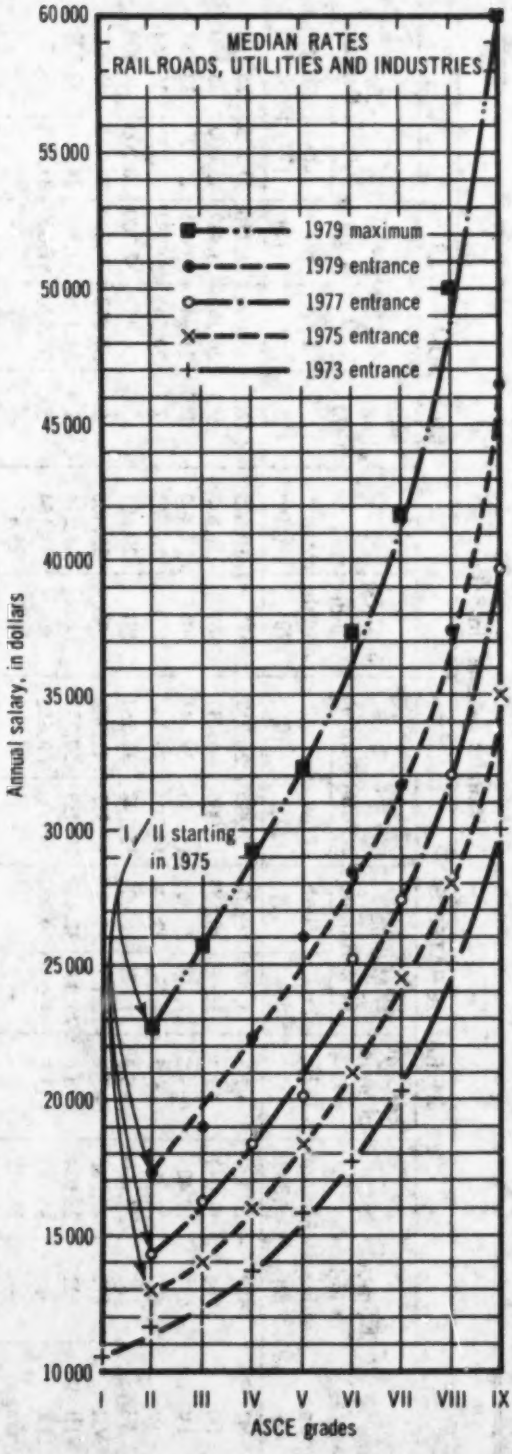

FIG. 8.—Median Salary Rates: Railroads, Utilities, and Industries

TABLE 9.—Railroads, Utilities, and Industries

ASCE grade (1)	Annual salaries, in dollars													
	ENTRANCE RATES							MAXIMUM RATES						
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range	
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)
I/II	1,046	17,220	+19.6	16,524	18,211	12,000	19,980	1,047	22,800	+18.8	20,000	24,981	14,000	29,940
III	985	19,000	+18.0	17,080	20,976	15,000	26,458	988	25,819	+16.3	22,368	28,800	17,000	32,160
IV	2,168	22,271	+20.6	20,500	23,580	14,000	29,827	2,172	29,224	+16.9	27,342	32,932	16,000	37,200
V	1,617	26,000	+29.8	21,221	27,324	16,000	30,430	1,623	32,232	+7.4	30,000	37,036	18,000	42,400
VI	144	28,377	+12.6	24,297	31,000	21,900	39,500	145	37,320	+10.3	33,180	42,780	28,000	59,300
VII	80	31,700	+15.4	28,000	35,220	22,000	42,000	85	41,678	+12.6	36,992	46,962	29,800	60,000
VIII	24	37,400	+16.9	32,000	40,700	29,020	46,000	29	50,000	+19.1	40,431	53,640	36,000	66,678
IX	20	46,460	+17.2	39,687	50,000	30,000	60,000	19	60,000	+6.2	47,386	66,830	36,000	88,488
Average	—	28,553	—	—	—	—	—	—	37,384	—	—	—	—	—

Note: Average of median entrance rates, all grades, in 1977 was $24,167; percent change 1977–1979 is +18.1%.

TABLE 10.—Education

ASCE grade (1)	Annual salaries, in dollars													
	ENTRANCE RATES							MAXIMUM RATES						
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range	
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)
(*a*) 9-10 Month Contract[a]														
I/II	36	8,000	−26.3	4,500	17,200	4,500	26,800	36	10,000	0	4,500	17,200	4,500	39,600
III	46	14,000	+10.2	12,000	15,500	9,000	21,400	46	17,140	+7.1	15,636	19,700	11,000	27,934
IV	220	18,000	+19.2	16,000	19,300	12,000	25,000	215	21,409	+12.7	20,000	23,400	16,000	32,000
V	277	20,300	+11.5	18,500	22,298	13,500	30,000	275	26,000	+13.0	23,100	28,500	16,111	37,000
VI	313	24,960	+14.0	21,930	26,000	2,400	34,000	310	32,600	+16.4	29,000	36,375	20,829	42,500
VII	109	30,000	+22.4	27,375	32,000	17,980	41,500	109	35,700	+11.6	32,500	39,200	26,770	49,393
VIII	36	32,000	+6.7	26,028	35,984	24,465	45,000	35	42,000	+21.7	35,255	46,000	31,416	53,976
IX	11	32,465	+24.9	—	34,000	32,465	40,600	10	43,255	+8.1	—	43,255	43,255	47,000
Average	—	22,465	—	—	—	—	—	—	28,513	—	—	—	—	—
(*b*) 11-12 Month Contract[b]														
I/II	5	—	—	—	—	17,076	17,076	5	—	—	—	—	18,816	18,816
III	26	13,000	−3.7	—	13,000	13,000	19,164	26	16,000	−15.8	—	16,000	16,000	23,304
IV	21	16,356	−9.5	16,000	22,000	16,000	22,320	23	20,100	−12.6	18,000	23,500	18,000	27,132
V	21	20,628	+2.6	12,500	25,296	12,500	27,400	21	26,690	+10.7	12,500	28,000	12,500	33,000
VI	33	29,100	+7.8	28,000	29,280	28,000	30,500	34	35,592	+11.2	31,665	38,000	31,665	40,750
VII	7	30,000	0	30,000	37,500	30,000	44,400	8	36,500	+1.4	34,000	38,000	34,000	47,300
VIII	7	—	—	—	—	36,000	36,000	8	45,500	+29.2	—	45,500	45,500	47,300
IX	2	40,000	—	—	40,000	40,000	55,000	2	50,000	—	—	50,000	50,000	55,000
Average	—	24,847	—	—	—	—	—	—	32,911	—	—	—	—	—

[a] Average of median entrance rates, all grades, in 1977 was $19,908; percent change 1977–1979 is 12.8%.

[b] Average of median entrance rates, all grades, in 1977 was $25,392; percent change 1977–1979 is −2.1%.

TABLE 11.—Comparison of Combined Grades in Each Employment Category

Category (1)	Annual salaries, in dollars													
	ENTRANCE RATES							MAXIMUM RATES						
	Number of individuals (2)	Median (3)	Percent change 1977–1979 (4)	Middle 50% Range		Total Range		Number of individuals (9)	Median (10)	Percent change 1977–1979 (11)	Middle 50% Range		Total Range	
				Low (5)	High (6)	Low (7)	High (8)				Low (12)	High (13)	Low (14)	High (15)
Consulting firms	12,533	21,900	+15.3	16,900	30,000	7,000	110,000	12,547	27,100	+12.9	20,500	36,400	8,000	130,000
Construction firms	4,005	23,000	+6.5	17,664	30,000	8,100	90,000	4,009	30,017	+4.2	23,946	40,440	14,000	250,000
State departments and agencies	22,807	21,576	+17.1	17,201	27,453	8,700	65,052	22,812	29,628	+17.6	23,816	36,816	12,600	78,216
Municipalities, counties, and regional authorities	2,927	20,775	+6.3	17,238	25,176	9,235	60,656	2,946	26,448	+7.5	22,008	32,287	11,273	75,377
Railroads, utilities, and industries	6,085	23,950	+17.4	19,292	30,000	12,000	60,000	6,108	32,219	+7.4	26,800	41,038	14,000	88,488
Education (9-10 month contract)	1,048	21,290	—	17,500	26,000	2,400	45,000	1,036	27,000	—	21,200	34,400	4,500	53,976
Education (11-12 month contract)	122	25,296	—	18,000	30,000	12,500	55,000	127	30,756	—	23,304	38,000	12,500	55,000
Overall	49,527	21,840	—	17,130	28,500	2,400	110,000	49,585	28,000	—	21,954	36,000	4,500	250,000

TABLE 12.—Salaries of Engineers in Education, 1978[a]

Title (1)	Median Salary by Rank and Type of Institution: Engineering school Ph.D. program (2)	Engineering school non-Ph.D. program (3)	Technical school (4)
(*a*) 9-10 Month Contract			
Instructor	$13,600	$13,900	$14,200
Assistant professor	$17,100	$17,000	$16,900
Associate professor	$20,800	$19,900	$19,700
Professor	$26,750	$24,850	$23,450
Administrator	$28,250	$24,350	$22,250
Researcher	$25,850	NA	NA
(*b*) 11-12 Month Contract			
Instructor	$17,400	$12,400	$17,800
Assistant professor	$21,750	$17,800	$15,250
Associate professor	$26,350	$27,450	$22,450
Professor	$32,900	$29,300	$18,500
Administrator	$35,800	$31,700	$25,400
Researcher	$18,400	$21,500	$25,400

[a] "Salaries of Engineers in Education, Special Report, 1978," survey report by Engineering Manpower Commission of Engineers Joint Council.

Note: In some cases the data are based on a very small number of salaries reported.

TABLE 13.—Annual Federal Salary Rates

G.S. grade (1)	1977 Rate, step 1, in dollars (2)	1979 Rate, step 1, in dollars (3)	Change, as a percentage (4)	ASCE grade (5)
5	21,947	14,618**	+12.9	I/II
7	14,802	18,101**	+22.3	—
9	16,096	21,011**	+30.5	III
11	18,258	22,672	+27.4	IV
12	21,883	24,703	+12.9	V
13	26,022	29,375	+12.9	VI
14	30,750	34,713	+12.9	VII
15	36,171	40,832	+12.9	VIII
16	42,423	47,889	+12.9	IX
17	49,696	56,099*	+12.9	IX
18	58,245	65,750*	+12.9	IX

TABLE 14.—Complete G.S. Schedule Effective October 1979, in dollars

Grade	Step									
	1	2	3	4	5	6	7	8	9	10
GS-5**	14,618	14,993	15,368	15,743	16,118	16,493	16,868	17,618	17,618	17,993
GS-7**	18,101	18,565	19,029	19,493	19,957	20,421	20,885	21,349	21,813	22,277
GS-9**	21,011	21,579	22,147	22,715	23,283	23,851	24,419	24,987	25,555	26,123
GS-11	22,672	23,359	24,046	24,733	25,420	26,107	26,794	27,481	28,168	28,855
GS-12	24,703	25,526	26,349	27,172	27,995	28,818	29,641	30,464	31,287	31,110
GS-13	29,375	30,354	31,333	32,312	33,291	34,270	35,249	36,228	37,207	38,186
GS-14	34,713	35,870	37,027	38,184	39,341	40,498	41,655	42,812	43,969	45,126
GS-15	40,832	42,193	43,554	44,915	46,276	47,637	48,998	50,359*	51,720*	53,081*
GS-16	47,889	49,485	51,081*	52,677*	54,273*	55,869*	57,465*	59,061*	60,657*	—
GS-17	56,099*	57,969*	59,839*	61,709*	63,579*	—	—	—	—	—
GS-18	65,750*	—	—	—	—	—	—	—	—	—

*Basic pay is limited by Section 5308 of Title 5 of United States Code to rate for level V of Executive Schedule which is, as of effective date of this schedule, $50,112.50.

**Salary Rates adjusted for Professionals in 800 Engineering Series.

Note: Majority of those previously in Grade 16 and above are now in Senior Executive Service (SES) and under different pay schedule.

TABLE 15.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE I/II															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	12,813	15,392	12,000	14,000	13,582	17,290	12,166	14,567	—	—	—	—	—	—	13,000	15,920
II	13,000	17,250	14,500	20,000	13,657	18,656	14,052	18,848	18,000	20,129	4,500	4,500	—	—	13,998	17,940
III	15,000	17,638	14,000	16,000	14,040	18,730	15,038	19,739	16,800	21,720	—	—	—	—	15,000	18,000
IV	14,000	16,000	13,860	19,620	14,128	20,238	14,643	19,000	16,524	20,000	—	—	—	—	14,280	18,178
V	14,500	17,000	—	—	14,148	20,004	15,180	19,738	16,625	21,600	14,400	16,000	—	—	14,560	17,680
VI	14,280	18,000	14,560	20,160	14,772	19,824	16,111	19,944	17,700	24,877	—	—	—	—	14,940	19,572

TABLE 16.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE III															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	15,600	18,200	13,000	15,000	15,041	19,344	15,643	17,672	—	—	12,504	16,013	—	—	15,600	19,344
II	16,000	20,280	18,000	22,000	15,920	20,699	16,300	21,550	20,200	22,271	12,300	15,300	—	—	16,000	20,722
III	17,000	20,000	16,800	22,000	16,560	22,147	17,000	21,507	17,212	25,700	15,300	17,000	—	—	17,000	21,000
IV	16,328	19,500	18,200	20,800	15,281	22,176	15,720	21,008	17,080	22,995	14,000	17,000	—	—	16,000	20,800
V	16,640	19,800	—	—	15,672	22,092	17,041	20,725	16,625	21,600	15,000	19,700	—	—	16,860	20,100
VI	17,000	20,000	17,160	23,400	17,220	22,956	17,760	21,971	21,180	27,936	10,812	—	—	—	17,592	22,000

TABLE 17.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE IV															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	17,992	23,000	15,000	18,000	14,914	21,372	14,445	20,000	—	—	17,000	21,409	—	—	17,160	21,372
II	19,000	23,400	23,200	29,900	19,263	25,041	18,848	24,800	22,271	28,000	17,000	22,000	—	—	19,263	24,440
III	19,200	24,000	19,708	23,000	19,263	25,041	18,000	23,808	20,575	28,000	18,500	21,000	—	—	19,500	24,300
IV	18,500	23,920	18,660	22,100	16,510	25,601	17,825	23,100	20,900	28,000	17,400	21,000	—	—	18,000	23,920
V	19,000	22,500	—	—	18,708	25,512	15,600	21,840	19,482	25,100	20,530	23,580	—	—	19,200	24,000
VI	20,000	25,000	19,680	27,300	19,908	26,000	19,800	25,147	23,580	31,392	18,060	20,000	16,356	19,692	20,000	25,500

TABLE 18.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE V															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	22,500	25,600	18,000	22,000	17,243	23,600	16,000	21,000	—	—	18,161	22,000	—	—	19,000	24,468
II	22,360	27,500	18,000	36,400	23,010	28,700	20,056	26,296	26,863	29,500	20,214	26,600	—	—	21,742	27,815
III	22,000	27,500	20,000	30,000	21,606	30,017	20,781	26,176	23,268	32,000	22,000	24,300	—	—	22,000	28,080
IV	22,000	27,000	20,880	24,000	17,748	27,144	18,145	24,596	23,950	30,000	19,000	25,440	12,500	12,500	20,808	27,000
V	22,452	27,000	—	—	19,068	26,028	20,729	25,200	25,000	30,000	22,298	27,084	—	—	21,576	27,600
VI	24,000	29,040	23,880	33,180	23,000	30,000	22,524	27,516	26,208	36,048	19,109	24,804	20,628	24,888	23,087	29,494

TABLE 19.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE VI															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	24,752	30,000	—	—	18,762	27,000	18,432	24,583	—	—	21,930	30,500	—	—	22,000	29,172
II	25,000	31,720	27,500	40,000	25,168	31,500	23,417	30,000	28,377	30,798	26,000	33,200	—	—	25,168	32,760
III	26,000	32,000	27,000	32,000	23,880	35,173	24,000	28,600	24,297	34,005	23,540	29,850	—	—	24,722	32,000
IV	25,638	31,000	23,400	29,900	20,484	30,432	22,020	29,400	—	—	22,000	29,000	—	—	23,500	31,080
V	25,000	32,000	—	—	22,068	29,124	21,757	26,457	—	—	25,500	30,000	—	—	24,500	31,500
VI	28,269	34,000	28,600	39,300	23,064	33,276	24,660	30,084	29,536	42,420	21,819	31,416	—	31,665	27,453	33,276

TABLE 20.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE VII															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	25,000	35,000	—	—	20,322	30,300	19,009	24,242	—	—	29,656	43,700	—	—	24,440	33,000
II	28,080	35,640	29,500	43,900	24,931	33,659	22,794	30,900	28,377	41,500	30,000	35,255	—	—	28,473	35,255
III	30,000	37,440	29,095	35,000	27,500	39,840	25,560	32,000	28,356	43,000	28,100	33,000	—	—	29,500	37,000
IV	30,000	35,500	—	30,000	23,178	34,260	20,626	28,104	—	—	27,000	33,000	30,000	36,500	28,000	34,980
V	30,000	35,000	—	—	23,976	33,732	24,468	30,432	22,700	35,000	30,000	36,000	—	—	28,000	35,000
VI	31,560	39,300	28,860	42,171	28,100	39,500	26,591	32,780	34,398	42,276	28,000	31,600	—	—	30,780	38,000

TABLE 21.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE VIII															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	35,000	41,600	—	—	25,700	31,500	23,774	27,563	—	—	—	—	—	—	30,000	35,475
II	33,509	41,600	32,000	40,000	28,861	38,957	28,934	36,749	36,378	42,996	24,465	35,255	—	—	32,000	40,040
III	35,000	40,500	32,000	50,000	31,620	44,580	29,137	35,143	32,000	45,600	27,800	—	—	—	31,620	41,000
IV	34,020	41,600	—	30,000	26,462	37,507	24,020	36,525	—	43,000	31,000	38,000	—	—	31,000	40,000
V	33,900	40,000	—	—	26,424	36,300	22,921	32,156	—	—	—	—	—	—	32,000	37,600
VI	38,000	48,000	38,160	46,200	30,756	42,420	29,136	37,024	38,040	49,000	26,028	43,300	—	—	33,600	43,000

TABLE 22.—Comparison of Median Rates by Regions, in dollars

Region (1)	GRADE IX															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	34,008	50,000	25,000	33,000	26,400	35,475	—	—	—	—	—	—	—	—	31,075	41,412
II	40,000	55,000	43,800	50,000	39,054	50,614	29,922	40,500	39,687	47,386	—	—	—	—	40,000	50,614
III	40,000	53,000	36,500	65,465	35,932	44,580	33,099	43,680	44,553	60,000	—	—	—	—	38,000	52,015
IV	44,980	50,000	—	—	31,080	38,520	26,228	36,719	—	—	—	—	—	—	40,000	50,000
V	38,000	47,600	—	—	29,124	38,500	—	31,000	—	—	—	—	—	—	35,400	41,600
VI	44,000	57,000	44,756	47,500	37,800	44,331	38,896	43,164	44,798	62,484	34,000	—	—	—	43,000	54,000

TABLE 23.—Comparison of Median Rates by Regions, in dollars

Region (1)	ALL GRADES															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Entrance (2)	Maximum (3)	Entrance (4)	Maximum (5)	Entrance (6)	Maximum (7)	Entrance (8)	Maximum (9)	Entrance (10)	Maximum (11)	Entrance (12)	Maximum (13)	Entrance (14)	Maximum (15)	Entrance (16)	Maximum (17)
I	20,000	26,000	16,560	22,000	19,084	25,282	16,391	20,941	—	—	18,500	24,416	26,500	33,000	19,000	25,000
II	21,320	27,560	25,000	35,000	21,473	28,700	20,056	26,373	28,200	33,222	22,500	29,249	—	—	21,900	28,675
III	21,700	27,000	21,000	30,000	22,091	30,082	21,519	26,775	22,600	32,000	22,000	24,500	27,400	28,000	22,000	28,000
IV	21,400	27,000	20,880	30,000	18,840	28,626	18,145	25,440	22,000	30,000	19,000	26,500	18,000	28,000	20,400	27,700
V	21,840	26,100	—	—	20,700	28,908	19,708	26,013	19,482	28,968	22,298	26,000	—	—	21,252	27,000
VI	23,000	28,000	23,087	31,320	23,064	30,756	21,774	27,312	26,458	34,620	21,468	28,450	20,628	24,888	22,860	29,040

TABLE 24.—Engineers Nonsalary Benefits, 1979 (Average Cost as Percentage of Base Payroll)

Benefit (1)	CONSULTING FIRMS			CONSTRUCTION FIRMS			STATE DEPARTMENTS AND AGENCIES			MUNICIPALITIES, COUNTIES, AND REGIONAL AUTHORITIES			RAILROADS, UTILITIES, AND INDUSTRIES			EDUCATION (11-12 month contract)			TOTAL AVERAGE		
	Number		Percentage	Number		Percentage	Number		Percentage	Number		Percentage	Number		Percentage	Number		Percentage	Number		Percentage
	A (2)	B (3)	(4)	A (5)	B (6)	(7)	A (8)	B (9)	(10)	A (11)	B (12)	(13)	A (14)	B (15)	(16)	A (17)	B (18)	(19)	A (20)	B (21)	(22)
Vacation	4	423	4.62	5	57	5.00	8	72	6.74	11	161	5.68	3	42	7.15	2	5	10.63	40	782	5.36
Holidays	5	424	2.94	6	54	3.00	8	68	4.12	10	163	3.90	3	42	3.94	2	5	2.55	45	784	3.36
Sick leave	17	378	2.53	13	42	3.40	8	71	4.26	12	157	4.57	10	31	4.08	2	4	4.46	78	703	3.38
Military leave	96	136	0.89	23	7	2.01	24	42	1.90	59	52	3.27	15	13	2.46	3	2	5.00	238	259	1.82
Incentive compensation	28	263	8.96	10	28	21.42	12	2	4.00	11	14	3.76	5	4	11.75	3	—	0.00	73	315	9.81
Retirement income	21	265	7.94	7	41	9.75	9	64	9.25	13	138	9.13	7	35	11.05	1	5	9.24	64	591	8.73
Social Security	19	403	7.73	11	47	10.22	12	58	6.98	19	144	6.78	6	35	7.60	1	6	5.76	77	730	7.59
Professional dues	46	338	1.31	11	31	1.05	16	7	0.31	35	73	1.66	13	12	2.59	3	1	0.70	133	471	1.40
Insurance—Medical	20	383	3.77	8	55	3.94	13	62	5.11	25	136	4.25	6	35	4.18	2	5	1.83	87	710	3.99
Insurance—Life	36	255	1.40	10	41	2.27	17	41	1.18	36	99	1.15	4	33	1.54	3	2	1.10	117	500	1.44
Education	72	224	0.86	17	16	1.14	26	12	0.68	46	44	1.13	14	10	0.79	3	—	0.00	189	315	1.00
Separation allowance	64	58	1.68	15	4	8.50	15	3	2.27	20	11	10.77	12	4	5.04	3	—	0.00	134	83	3.63
Other	62	200	2.70	10	32	5.79	19	15	2.15	35	55	3.57	8	15	2.82	2	—	0.00	141	324	3.22
Average of overall percentage	—	—	34.63	—	—	42.25	—	—	33.81	—	—	35.18	—	—	38.65	—	—	26.65	—	—	36.51

Note: A = employers indicating benefit is given without showing percentage (not available); B = employers indicating benefit with percentage.

TABLE 25.—Average Typical Annual Incentive Benefits

ASCE grade (1)	EMPLOYER CATEGORY															
	Consulting Firms		Construction Firms		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education (9-10 month contract)		Education (11-12 month contract)		Totals	
	Dollars (2)	Number of individuals (3)	Dollars (4)	Number of individuals (5)	Dollars (6)	Number of individuals (7)	Dollars (8)	Number of individuals (9)	Dollars (10)	Number of individuals (11)	Dollars (12)	Number of individuals (13)	Dollars (14)	Number of individuals (15)	Dollars (16)	Number of individuals (17)
I/II	1,380	1,134	3,412	16	483	31	1,072	29	705	11	—	—	—	—	1,456	1,221
III	1,802	1,059	3,584	29	525	43	1,269	24	855	5	1,200	—	—	—	1,880	1,160
IV	2,345	1,077	3,688	47	570	41	1,560	43	1,005	3	1,550	12	—	—	2,374	1,223
V	3,363	1,236	7,185	41	633	14	1,259	28	3,128	10	1,167	12	—	—	3,539	1,341
VI	5,944	1,016	6,389	30	705	18	1,761	20	3,500	1	1,925	8	—	—	5,720	1,093
VII	7,088	784	10,617	135	748	14	1,047	11	6,418	7	600	1	—	—	7,110	952
VIII	11,643	520	16,635	27	780	8	1,677	4	14,334	6	—	—	—	—	11,735	565
IX	17,153	348	58,155	22	818	4	—	—	16,165	3	—	—	—	—	19,979	377

TABLE 26.—Average Total Cash Compensation

ASCE grade (1)	EMPLOYER CATEGORY						
	Consulting firms (2)	Construction firms (3)	State departments and agencies (4)	Municipalities, counties, and regional authorities (5)	Railroads, utilities, and industries (6)	Education	
						9-10 month contract (7)	11-12 month contract (8)
I/II	17,139	20,609	18,289	18,449	20,778	15,245	17,946
III	20,531	24,142	20,916	20,762	23,480	17,269	17,867
IV	24,236	27,500	23,379	23,445	26,889	21,397	21,160
V	28,807	34,234	26,400	25,436	32,561	24,705	24,101
VI	35,562	39,891	29,182	28,650	37,370	30,362	33,543
VII	41,187	47,297	32,913	30,941	44,167	34,239	38,078
VIII	51,780	59,162	36,747	35,181	59,055	37,694	42,933
IX	68,372	126,798	41,625	41,589	69,769	39,464	50,000

TABLE 27.—Employment Guidelines

Answers (1)	EMPLOYMENT CATEGORIES: Total (2)	Consulting firms (3)	Construction firms (4)	State departments and agencies (5)	Municipalities, counties, and regional authorities (6)	Railroads, utilities, and industries (7)	Education: 9-10 month contract (8)	Education: 11-12 month contract (9)
(*a*) Q.1 Are You Familiar with ASCE *Manual 55*?								
Total	864 (100.0%)	437 (100.0%)	64 (100.0%)	84 (100.0%)	170 (100.0%)	43 (100.0%)	61 (100.0%)	5 (100.0%)
Yes	300 (34.7%)	186 (42.6%)	11 (17.2%)	19 (22.6%)	51 (30.0%)	8 (18.6%)	24 (39.3%)	1 (20.0%)
No	541 (62.6%)	237 (54.2%)	51 (79.7%)	62 (73.8%)	117 (68.8%)	35 (81.4%)	35 (57.4%)	4 (80.0%)
No answer	23 (2.7%)	14 (3.2%)	2 (3.1%)	3 (3.6%)	2 (1.2%)	(0.0%)	2 (3.3%)	— (0.0%)
(*b*) Q.1 How Do Employment Conditions in Your Organization Compare with Recommendations in Section 1—Professional Employment (Based on number of yes answers in Section (*a*).)								
Similar	199 (66.3%)	133 (71.5%)	5 (54.5%)	14 (73.7%)	24 (47.1%)	6 (75.0%)	15 (62.5%)	1 (100.0%)
Better	24 (8.0%)	19 (10.2%)	— (0.0%)	1 (5.3%)	2 (3.9%)	— (0.0%)	2 (8.3%)	— (0.0%)
Not as good	32 (10.7%)	7 (3.8%)	4 (36.4%)	2 (10.5%)	15 (29.4%)	1 (12.5%)	3 (12.5%)	— (0.0%)
No opinion	45 (15.0%)	27 (14.5%)	1 (9.1%)	2 (10.5%)	10 (19.6%)	1 (12.5%)	4 (16.7%)	— (0.0%)
(*c*) Q.1 How Do Employment Conditions in Your Organization Compare with Recommendations in Section 2—Professional Grade Descriptions (Based on number of yes answers in Section (*a*).)								
Similar	169 (56.3%)	110 (59.1%)	3 (27.3%)	12 (63.2%)	22 (43.1%)	5 (62.5%)	17 (70.8%)	— (0.0%)
Better	10 (3.3%)	6 (3.2%)	— (0.0%)	2 (10.5%)	— (0.0%)	— (0.0%)	2 (8.3%)	— (0.0%)
Not as good	59 (19.7%)	32 (17.2%)	5 (45.5%)	3 (15.8%)	17 (33.3%)	1 (12.5%)	1 (4.2%)	— (0.0%)
No opinion	62 (20.7%)	38 (20.4%)	3 (27.3%)	2 (10.5%)	12 (23.5%)	2 (25.0%)	4 (16.7%)	1 (100.0%)
(*d*) Q.1 How Do Employment Conditions in Your Organization Compare with Recommendations in Section 3—Recommended Salary Ranges (Based on number of yes answers in Section (*a*).)								
Similar	118 (39.3%)	86 (46.2%)	6 (54.5%)	6 (31.6%)	9 (17.6%)	2 (25.0%)	9 (37.5%)	— (0.0%)
Better	22 (7.3%)	16 (8.6%)	3 (27.3%)	2 (10.5%)	— (0.0%)	1 (12.5%)	— (0.0%)	— (0.0%)
Not as good	113 (37.7%)	57 (30.6%)	1 (9.1%)	7 (36.8%)	32 (62.7%)	3 (37.5%)	12 (50.0%)	1 (100.0%)
No opinion	47 (15.7%)	27 (14.5%)	1 (9.1%)	4 (21.1%)	10 (19.6%)	2 (25.0%)	3 (12.5%)	— (0.0%)
(*e*) Q.1 How Do Employment Conditions in Your Organization Compare with Recommendations in Section 4—Recommended Benefits (Based on number of yes answers in Section (*a*).)								
Similar	129 (43.0%)	83 (44.6%)	3 (27.3%)	8 (42.1%)	22 (43.1%)	4 (50.0%)	9 (37.5%)	— (0.0%)

TABLE 27.—*Continued*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Better	58 (19.3%)	38 (20.4%)	5 (45.5%)	5 (26.3%)	8 (15.7%)	2 (25.0%)	— (0.0%)	— (0.0%)
Not as good	64 (21.3%)	37 (19.9%)	2 (18.2%)	2 (10.5%)	10 (19.6%)	2 (25.0%)	11 (45.8%)	— (0.0%)
No opinion	49 (16.3%)	28 (15.1%)	1 (9.1%)	4 (21.1%)	11 (21.6%)	— (0.0%)	4 (16.7%)	1 (100.0%)

TABLE 28.—Has the Manual Met the Need?

Answers (1)	EMPLOYMENT CATEGORIES: Total (2)	Consulting firms (3)	Construction firms (4)	State departments and agencies (5)	Municipalities, counties, and regional authorities (6)	Railroads, utilities, and industries (7)	Education: 9-10 month contract (8)	Education: 11-12 month contract (9)
(*a*) Q.2 Do you Believe that *Manual 55* Has Met the Need for Better Defining Employment Conditions?								
Total	864 (100.0%)	437 (100.0%)	64 (100.0%)	84 (100.0%)	170 (100.0%)	43 (100.0%)	61 (100.0%)	5 (100.0%)
Yes	239 (27.7%)	147 (33.6%)	7 (10.9%)	17 (20.2%)	40 (23.5%)	7 (16.3%)	20 (32.8%)	1 (20.0%)
No	61 (7.1%)	28 (6.4%)	5 (7.8%)	6 (7.1%)	12 (7.1%)	4 (9.3%)	5 (8.2%)	1 (20.0%)
No answer	564 (65.3%)	262 (60.0%)	52 (81.3%)	61 (72.6%)	118 (69.4%)	32 (74.4%)	36 (59.0%)	3 (60.0%)
(*b*) Q.2 If No, Sections Needing Further Treatment (Based on number of yes answers in Section (*a*).)								
Section—1 Professional Employment	10 (16.4%)	6 (21.4%)	— (0.0%)	1 (16.7%)	1 (8.3%)	1 (25.0%)	1 (20.0%)	— (0.0%)
Section 2— Professional Grade Descriptions	8 (13.1%)	5 (17.9%)	— (0.0%)	— (0.0%)	1 (8.3%)	1 (25.0%)	1 (20.0%)	— (0.0%)
Section 3— Recommended Salary Ranges	17 (27.9%)	13 (46.4%)	— (0.0%)	1 (16.7%)	2 (16.7%)	— (0.0%)	1 (20.0%)	— (0.0%)
Section 4— Recommended Benefits	9 (14.8%)	7 (25.0%)	— (0.0%)	— (0.0%)	1 (8.3%)	— (0.0%)	1 (20.0%)	— (0.0%)
No Answer	1 (67.2%)	14 (50.0%)	5 (100.0%)	4 (66.7%)	10 (83.3%)	3 (75.0%)	4 (80.0%)	1 (100.0%)

TABLE 29.—Use of Professional Grade Classifications

Answers (1)	EMPLOYMENT CATEGORIES: Total (2)	Consulting firms (3)	Construction firms (4)	State departments and agencies (5)	Municipalities, counties, and regional authorities (6)	Railroads, utilities, and industries (7)	Education: 9-10 month contract (8)	Education: 11-12 month contract (9)
(*a*) Q.3 Have You Come to an Understanding with Your Employees on Their Professional Grade Classification?								
Total	864 (100.0%)	437 (100.0%)	64 (100.0%)	84 (100.0%)	170 (100.0%)	43 (100.0%)	61 (100.0%)	5 (100.0%)
Yes	375 (43.4%)	195 (44.6%)	13 (20.3%)	50 (59.5%)	69 (40.6%)	19 (44.2%)	28 (45.9%)	1 (20.0%)
No	345 (39.9%)	195 (44.6%)	33 (51.6%)	13 (15.5%)	67 (39.4%)	12 (27.9%)	24 (39.3%)	1 (20.0%)
No answer	144 (16.7%)	47 (10.8%)	18 (28.1%)	21 (25.0%)	34 (20.0%)	12 (27.9%)	9 (14.8%)	3 (60.0%)
(*b*) Q.3 Do You Use the ASCE Professional Grade Descriptions?								
Total	864 (100.0%)	437 (100.0%)	64 (100.0%)	84 (100.0%)	170 (100.0%)	43 (100.0%)	61 (100.0%)	5 (100.0%)
Yes	124 (14.4%)	98 (22.4%)	3 (4.7%)	4 (4.8%)	8 (4.7%)	4 (9.3%)	7 (11.5%)	— (0.0%)
No	561 (64.9%)	267 (61.1%)	38 (59.4%)	59 (70.2%)	124 (72.9%)	29 (67.4%)	42 (68.9%)	2 (40.0%)
No answer	179 (20.7%)	72 (16.5%)	23 (35.9%)	21 (25.0%)	38 (22.4%)	10 (23.3%)	12 (19.7%)	3 (60.0%)

TABLE 30.—Professional Liability Claim Protection

Q.4 Does Your Agency/Firm Provide Legal Support in the Event of a Professional Liability Claim Against One of Your Employees Due to His Performance of Professional Duties for the Agency/Firm?

Answers (1)	EMPLOYMENT CATEGORIES: Total (2)	Consulting firms (3)	Construction firms (4)	State departments and agencies (5)	Municipalities, counties, and regional authorities (6)	Railroads, utilities, and industries (7)	Education: 9-10 month contract (8)	Education: 11-12 month contract (9)
Total	864 (100.0%)	437 (100.0%)	64 (100.0%)	84 (100.0%)	170 (100.0%)	43 (100.0%)	61 (100.0%)	5 (100.0%)
Yes	655 (75.8%)	359 (82.2%)	45 (70.3%)	62 (73.8%)	121 (71.2%)	30 (69.8%)	34 (55.7%)	4 (80.0%)
No	88 (10.2%)	29 (6.6%)	4 (6.3%)	8 (9.5%)	22 (12.9%)	4 (9.3%)	20 (32.8%)	1 (20.0%)
No answer	121 (14.0%)	49 (11.2%)	15 (23.4%)	14 (16.7%)	27 (15.9%)	9 (20.9%)	7 (11.5%)	— (0.0%)

TABLE 31.—Educational Background of Employees

Q.5 How Many Engineers in Your Employ Have as Their Highest Degree a:		
Category (1)	Number of degrees reported (2)	Number of employers responding (3)
(a) B.S. Degree		
Consulting firms	7,742	399
Construction firms	2,127	52
State departments and agencies	3,615	56
Municipalities, counties, and regional authorities	1,379	140
Railroads, utilities, and industries	1,036	32
Education, 9-10 month contract	60	25
Education, 11-12 month contract	—	1
Total	15,959	705
(b) M.S. Degree		
Consulting firms	3,891	356
Construction firms	534	39
State departments and agencies	584	50
Municipalities, counties, and regional authorities	208	107
Railroads, utilities, and industries	273	26
Education, 9-10 month contract	217	50
Education, 11-12 month contract	10	3
Total	5,717	631
(c) Ph.D. Degree		
Consulting firms	501	252
Construction firms	33	23
State departments and agencies	140	35
Municipalities, counties, and regional authorities	13	67
Railroads, utilities, and industries	73	19
Education, 9-10 month contract	822	53
Education, 11-12 month contract	43	3
Total	1,625	452

TABLE 32.—Professional Registration

Q.6 How Many Are Registered?				
Professional Engineers		Question No. 6 EIT's		
Category (1)	Number of P.E. (2)	Number of employers (3)	Number of EIT's (4)	Number of employers (5)
Consulting firms	7,186	411	1,957	352
Construction firms	942	49	101	26
State departments and agencies	6,237	70	1,317	56
Municipalities, counties, and regional authorities	6,237	70	1,317	56
Railroads, utilities, and industries	1,169	154	260	109
Education, 9-10 month contract	637	34	83	22
Education, 11-12 month contract	38	4	9	3
Total	16,735	774	3,843	605

TABLE 33.—Anticipated Demand for Civil Engineers

Q.7 What Do You Anticipate the Demand Will Be for Civil Engineers within the Next 5 Years?								
	EMPLOYMENT CATEGORIES							
							Education	
Answers (1)	Total (2)	Consulting firms (3)	Construction firms (4)	State departments and agencies (5)	Municipalities, counties, and regional authorities (6)	Railroads, utilities, and industries (7)	9-10 month contract (8)	11-12 month contract (9)
Total	864 (100.0%)	437 (100.0%)	64 (100.0%)	84 (100.0%)	170 (100.0%)	43 (100.0%)	61 (100.0%)	5 (100.0%)
Increase	495 (57.3%)	288 (65.9%)	39 (60.9%)	27 (32.1%)	80 (47.1%)	18 (41.9%)	38 (62.3%)	5 (100.0%)
Decrease	36 (4.2%)	22 (5.0%)	2 (3.1%)	3 (3.6%)	6 (3.5%)	— (0.0%)	3 (4.9%)	— (0.0%)
Same	234 (27.1%)	89 (20.4%)	14 (21.9%)	33 (39.3%)	65 (38.2%)	16 (37.2%)	17 (27.9%)	— (0.0%)
No answer	99 (11.5%)	38 (8.7%)	9 (14.1%)	21 (25.0%)	19 (11.2%)	9 (20.9%)	3 (4.9%)	— (0.0%)

EUGENE ZWOYER, Executive Director

AMERICAN SOCIETY OF CIVIL ENGINEERS

345 EAST 47th STREET • NEW YORK, N. Y. 10017 • (212) 644-7496

August 27, 1979

File: 5-4-4.12

TO: Partners, Comptrollers and Principal Officers
Chairmen, Department Heads and Deans

1979 ASCE SALARY SURVEY
REQUESTS FOR CIVIL ENGINEERING SALARY DATA
ANALYSIS TO BEGIN OCTOBER 1, 1979

Gentlemen:

The American Society of Civil Engineers is now conducting the fifteenth in its series of biennial salary surveys and would like to include your organization. We need your assistance to continue providing meaningful data on the compensation of civil engineers, as a service to the membership, the profession and the public.

The last survey in this series was conducted in December of 1977. Those who participated should have received a copy of the report. For those who did not, the complete report was published in the October 1978 edition of ENGINEERING ISSUES, the ASCE Journal of Professional Activities. Separately bound reprints of the biennial reports are available from the Society and approximately two thousand copies of the 1977 report have been distributed in response to requests for information.

Processing of the returns will begin October 1, 1979. Please fill out and return the enclosed questionnaire in the pre-stamped envelope provided at your earliest convenience. As always we will make sure the data is treated confidentially. The report should be available early in 1980.

It is our general practice to forward a copy of the final report to those who respond to the survey as a token of our appreciation. To assure prompt delivery, please fill out the request form at the bottom of page 4 of the questionnaire.

Thank you for your cooperation.

Sincerely,

Eugene Zwoyer

Eugene Zwoyer
Executive Director

Enclosures: a) Salary Survey Questionnaire Folder
b) ASCE Professional Grade Descriptions Folder
c) Pre-stamped response Envelope

EUGENE ZWOYER, Executive Director

AMERICAN SOCIETY OF CIVIL ENGINEERS

345 EAST 47th STREET • NEW YORK, N. Y. 10017 • (212) 644-7496

August 27, 1979

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TO: Partners, Comptrollers and Principal Officers
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1979 ASCE SALARY SURVEY
REQUESTS FOR CIVIL ENGINEERING SALARY DATA
ANALYSIS TO BEGIN OCTOBER 1, 1979

Gentlemen:

In responding to this survey, please assign (equate) each engineering position in your organization to a specific grade in the ASCE system of professional grades. A summary of the ASCE descriptions for each of the eight professional grades in the classification system is enclosed. These grades and descriptions are compatible with those use by several other societies and the U.S. Department of Labor/Bureau of Labor Statistics. They are also equatable to the U.S. Civil Service specifications as shown in Table I of the enclosures. Many organizations will not have employees in all grades. However, it is important that you supply data for the grades that do apply.

Geographic distribution is important to this survey. Therefore, if your firm has offices located in various parts of the country and pays salaries that are adjusted for regional differences, it is important that a survey form is filled out for full-time employees in each of these locations. Photocopies may be used, or additional survey forms may be obtained from ASCE headquarters. Requests should be sent to R. L. Whipple, Jr., Director, Engineering Management Services.

The data for this survey are collected on a sampling basis, using representative organizations in the following six major categories:

1. Consulting firms
2. Construction firms
3. State departments and agencies (transportation, highway, public works, etc.)
4. Municipalities and counties
5. Industries, railroads and utilities
6. Education

As one of a selected group of respondents, you are urged to return the completed questionnaire to Society headquarters as promptly as possible. Analysis of the returns will begin on October 1, 1979.

Your cooperation in this important activity of the Society is deeply appreciated. We wish to assure you that the survey forms will be treated with strict confidence.

Committee on Employment Conditions

1979 SALARY SURVEY OF CIVIL ENGINEERING POSITIONS

Enter State Code (see back of Grade Desc.'s) ☐ (8)
Employment Category (see page 1) ☐ (6)

_____
(name of organization)

_____
(location of office)

_____
(state) (zip)

General nature of business: _____

Name and title of person furnishing data: _____

NOTE: The above information is confidential and will not be published.

INSTRUCTIONS

1. Report Data in terms of *ANNUAL SALARY* only. Monthly or weekly rates should be converted to annual salary. Round decimals to nearest whole dollars.
2. If a GRADE DOES NOT APPLY to your particular organization, ENTER "N" under annual salary and number of employees. (If no incentive compensation is given, enter "0.")
3. If, at the time of the survey, there are NO EMPLOYEES IN A SPECIFIED GRADE for which a SPECIFIED SALARY RANGE has been provided, enter "0" under number of employees.
4. *EDUCATORS ONLY:* Please check applicable basis for salary data provided: 9-10 Month Contract ☐ 11-12 Month Contract ☐

ASCE Professional GRADE*	ANNUAL BASE SALARY ($) (not monthly or weekly rate) RANGE		VALUE OF INCENTIVE COMPENSATION IN 1978 ($) (Bonuses and/or Profit sharing)	Number of EMPLOYEES IN GRADE (If none, enter 0)
	ENTRANCE	MAXIMUM		
I/II	Card 1 $ _____ (9-14)	$ _____ (15-20)	$ _____ (21-26)	_____ (27-30)
III	$ _____ (32-37)	$ _____ (38-43)	$ _____ (44-49)	_____ (50-53)
IV	$ _____ (55-60)	$ _____ (61-66)	$ _____ (67-72)	_____ (73-76)
V	Card 2 $ _____ (9-14)	$ _____ (15-20)	$ _____ (21-26)	_____ (27-30)
VI	$ _____ (32-37)	$ _____ (38-43)	$ _____ (44-49)	_____ (50-53)
VII	$ _____ (55-60)	$ _____ (61-66)	$ _____ (67-72)	_____ (73-76)
VIII	Card 3 $ _____ (9-14)	$ _____ (15-20)	$ _____ (21-26)	_____ (27-30)
IX	$ _____ (32-37)	$ _____ (38-43)	$ _____ (44-49)	_____ (50-55)

*Before entering data, please refer to the ASCE Professional Grade Descriptions outlined on the enclosed summary table.

( ) For keypunch use only.

SALARY SURVEY — RELATED BENEFITS

Over the years numerous non-salary benefits have become a significant complement to annual base salary in making up total compensation. Therefore, it is essential to consider both when making a comparison or evaluation. For this reason, we ask that you INDICATE THE APPROXIMATE PERCENT of your ANNUAL BASE PAYROLL[1] represented by each of the benefit items listed below.

It is not necessary to provide detailed descriptions or pinpoint accuracy. We just need a good general picture in terms of approximate percentages that can be easily tabulated. For "Retirement", "Insurance" and other similar benefits, INDICATE ONLY THE ANNUAL CONTRIBUTION MADE BY THE ORGANIZATION for the benefit of the employee. If benefit is given, but percentage is not available, enter "N/A." If benefit is not given, enter "0."

CARD #3 continued ITEM (BENEFIT)	PERCENTAGE[2] OF ANNUAL BASE PAYROLL%	COMMENTS
1. Vacation	_____% (55-58)	_____
2. Holidays	_____% (59-62)	_____
3. Sick Leave	_____% (63-66)	_____
4. Military Leave and Jury Duty	_____% (67-70)	_____
5. Incentive Compensation (1978)	_____% (71-74)	_____
6. Retirement Income and Deferred Profit Sharing	_____% (75-78)	_____
7. Social Security, Unemployment and Workmen's Compensation Taxes	_____% Card 4 (9-12)	_____
8. Professional Dues, Licenses and Meetings	_____% (13-16)	_____
9. Insurance — medical	_____% (17-20)	_____
10. Insurance — life	_____% (21-24)	_____
11. Education	_____% (25-28)	_____
12. Separation Allowance	_____% (29-32)	_____
13. Other — including vehicle, parking, etc.	_____% (33-36)	_____

(1) Annual Base Payroll is defined as base payroll (combined salaries) for 52 weeks, and does not include overtime or incentive compensation (bonuses and/or profit sharing).
(2) Use decimals for fractions of a percent — i.e., 2.50%.

GENERAL INFORMATION

The following questions refer to MANUAL 55 "ASCE GUIDE TO EMPLOYMENT CONDITIONS FOR CIVIL ENGINEERS." This publication has been widely distributed by the Society in an attempt to inform its members, employers and employees alike, of reasonably acceptable personnel management practices and to provide a common basis for communication, cooperation and mutual understanding. We are interested in learning your reaction to this publication.

As with other portions of the questionnaire, individual responses to the following questions WILL BE KEPT CONFIDENTIAL.

Card 4 continued

1. Are you familiar with ASCE Manual 55? Yes ☐ (38) No ☐

If yes, how do employment conditions in your organization compare with recommendations in each section of Manual 55? (Answer for each section) 1. Similar 2. Better 3. Not as Good 4. No opinion

Section 1 — Professional Employment	☐	(39)
Section 2 — Professional Grade Descriptions	☐	(40)
Section 3 — Recommended Salary Ranges	☐	(41)
Section 4 — Recommended Benefits	☐	(42)

2. Do you believe that Manual 55 has met the need for better defining employment conditions? Yes ☐ (43) No ☐

If "No," indicate Section(s) needing further treatment by inserting (1) in the space provided (zero = no improvement needed)

Section 1 — Professional Employment	☐	(44)
Section 2 — Professional Grade Descriptions	☐	(45)
Section 3 — Recommended Salary Ranges	☐	(46)
Section 4 — Recommended Benefits	☐	(47)

3. Have you come to an understanding with your employees on their Professional Grade Classification? Yes ☐ (48) No ☐

Do you use the ASCE Professional Grade Descriptions? ☐ (49) ☐

4. Does your agency/firm provide legal support in the event of a Professional Liability Claim against one of your employees due to his performance of professional duties for the agency/firm? Yes ☐ (50) No ☐

5. How many engineers in your employ have as their highest degree a BS_____? an MS_____? a Ph.D._____? (51-54) (55-58) (59-62)

6. How many are registered Professional Engineers _____? EIT's _____? (63-66) (67-70)

7. What do you anticipate the demand will be for Civil Engineers within the next 5 years?

1. increase 2. decrease 3. same ☐ (71)

Estimated Percentage (nearest whole %) _____ (72-74)

... THANK YOU FOR YOUR COOPERATION ...
PLEASE BE SURE TO RETURN THIS QUESTIONNAIRE BEFORE October 1, 1979
in the self-addressed, postage paid envelope provided.

PLEASE FORWARD A COPY OF THE:

☐ 1979 ASCE Salary Survey Report

☐ Manual No.55 — "ASCE Guide to Employment Conditions for Civil Engineers"

TO:

_____
(NAME)

_____
(FIRM OR ORGANIZATION)

_____
(ADDRESS)

_____
(CITY) (STATE) (ZIP)

ASCE PROFESSIONAL GRADE DESCRIPTIONS

The purpose of these grade descriptions is to enable employers and employees to ascertain an individual's professional grade. The system can also be a helpful tool for encouraging engineers to improve their ability so as to qualify for higher grades and to facilitate agreement between the employer and the employee regarding each engineer's level of responsibility.

These grade descriptions are compatible with those of the U.S. Department of Labor, Bureau of Labor Statistics (BLS) and of the National Society of Professional Engineers (NSPE). It must be stressed that the grade descriptions are intended to cover the requirements of a wide range of typical engineering organizations but cannot possibly fit all. Many employers may not have the full range of positions listed. Table #1 (on the back page) indicates Federal G.S. equivalents with ASCE grades.

Descriptions should be considered as typical characteristics of a particular grade, rather than as desirable or minimum requirements. For example, it is expected that in many areas of practice, such as research and development, individuals filling middle or higher level positions would routinely have graduate degrees, though this is not indicated. All descriptive matter should be considered when a position is being evaluated. Literal conformance with every item in the descriptions is not necessary when there is a preponderance of evidence that the person measures up to the intended level of competence and responsibility.

Suitable professional recognition and salary scales should be provided for the engineer who selects the technical path for advancement so that he may achieve the same or greater professional and economic status as the engineer who advances along the management path. The grade descriptions include language applicable to both.

Many positions may require an advanced degree. There also may be cases where individuals holding engineering positions have degrees in certain scientific or other closely related fields.

ASCE PROFESSIONAL

	Engineer I/II	Engineer III	Engineer IV	Engineer V
General Characteristics	This is the entry level for professional work. Performs assignments designed to develop professional work knowledge and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives.	Independently evaluates selects and applies standard engineering techniques, procedures, and criteria, using judgment in making minor adaptations and modifications. Assignments have clear and specified objectives and require the investigation of a limited number of variables. Performance at this level requires developmental experience in a professional position or equivalent graduate level education.	As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.	Applies extensive and diversified knowledge of engineering principles and practices in broad areas of assignments and related fields. Makes decisions independently on engineering problems and methods, and represents the organization in conferences to resolve important questions and to plan and coordinate work. Requires the use of advanced techniques and the modification and extension of theories, precepts and practices of his field and related sciences and disciplines. The knowledge and expertise required for this level of work usually result from progressive experience.
Direction Received	Supervisor screens assignments for unusual or difficult problems and selects techniques and procedures to be applied on nonroutine work. Receives close supervision on new aspects of assignments.	Receives instructions on specific assignment objectives, complex features, and possible solutions. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.	Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.	Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.
Typical Duties & Responsibilities	Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.	Performs work which involves conventional types of plans, investigations, surveys, structures, or equipment with relatively few complex features for which there are precedents. Assignments usually include one or more of the following: Equipment design and development, test of materials, preparation of specifications, process study and research investigations, report preparation, and other activities of limited scope requiring knowledge of principles and techniques commonly employed in the specific narrow area of assignments.	Plans, schedules, conducts, or coordinates detailed phases of the engineering work on a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of principles and practices of related specialties.	One or more of the following: (1) In a supervisory capacity, plans, develops, coordinates, and directs a large and important engineering project or a number of small projects with many complex features. A substantial portion of the work supervised is comparable to that described for engineer IV. (2) As individual researcher or worker, carries out complex or novel assignments requiring the development of new or improved techniques and procedures. Work is expected to result in the development of new or improved techniques and procedures. Work is expected to result in the development of new or refined equipment, materials, processes, products, and/or scientific methods. (3) As staff specialist, develops and evaluates plans and criteria for a variety of projects and activities to be carried out by others. Assesses the feasibility and soundness of proposed engineering evaluation tests, products, or equipment when necessary data are insufficient or confirmation by testing is advisable. Usually performs as a staff advisor and consultant as to a technical specialty, a type of facility or equipment, or a program function.
Responsibility for Direction of Others	May be assisted by a few aides or technicians.	May supervise or coordinate the work of draftsmen, technicians, and others who assist in specific assignments.	May supervise or coordinate the work of engineers, draftsmen, technicians, and others who assist in specific assignments.	Supervises, coordinates, and reviews the work of a small staff of engineers and technicians, estimates manpower needs and schedules and assigns work to meet completion date. Or, as individual researcher or staff specialist may be assisted on projects by other engineers or technicians.
Typical Position Titles	Junior Engineer, Associate, Detail Engineer, Engineer-in-Training, Asst. Research Engineer, Construction Inspector.	Engineer or Assistant Engineer, Project, Plant, Office, Design, Process, Research, Inspector, Engineering Instructor.	Engineer or Assistant Engineer, Resident, Project, Plant, Office, Design, Process, Research, Chief Inspector, Assistant Professor.	Senior or Principal Engineer, Resident, Project, Office, Design, Process, Research, Asst. Division Engineer, Associate Professor, Project Leader.
Education	Bachelor's Degree in engineering from an ECPD accredited curriculum, or equivalent, plus appropriate continuing education.			
Registration (State)	Certified Engineer-in-Training.		Registered Professional Engineer.	
Typical Professional Attainments	Member of Professional and Technical Societies (Associate Grade or Equivalent).		Member of Professional Society (Member Grade).	
			Member of Technical Society (Associate Grade or Equivalent).	Member of Technical Society (Member Grade). Publishes engineering papers, articles, textbooks, or notes.

GRADE DESCRIPTIONS

Engineer VI	Engineer VII	Engineer VIII	Engineer IX
Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation, and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside his organization with responsibility for acting independently on technical matters pertaining to his field. Work at this level usually requires extensive progressive experience.	Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive engineering activities. Initiates and maintains extensive contacts with key engineers and officials of other organizations and companies, requiring skill in persuasion and negotiation of critical issues. At this level individuals exhibit high demonstrated creativity, foresight, and mature engineering judgment in anticipating and solving unprecedented engineering problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse engineering activities.	Makes decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive engineering programs and activities of outstanding novelty and importance.	An engineer in this level is either (1) in charge of programs so extensive and complex as to require staff and resources of sizable magnitude (e.g., research and development, a department of government responsible for extensive engineering programs, or the major component of an organization responsible for the engineering required to meet the objectives of the organization), or (2) is an individual researcher or consultant who is recognized as a national and/or international authority and leader in an area of engineering or scientific interest and investigation.
Supervision received is essentially administrative, with assignments given in terms of broad general objectives and limits.	Supervision received is essentially administrative, with assignments given in terms of broad general objectives and limits.	Receives general administrative direction.	
One or more of the following: (1) In a supervisory capacity (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance, or (b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his responsibilities generally require a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker conceives, plans, and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and scientifically related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. (3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e., subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting his organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments.	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of the engineering program of a organization with extensive and diversified engineering requirements, or (b) the entire engineering program of an organization when it is more limited in scope. The overall engineering program contains critical problems the solution of which requires major technological advances and opens the way for extensive related development. The extent of his responsibilities generally requires several subordinate organizational segments or teams. Recommends facilities, personnel, and funds required to carry out programs which are directly related with and directed toward fulfillment of overall organization objectives. (2) As individual researcher and consultant is a recognized leader and authority in his organization in a broad area of specialization or in a narrow but intensely specialized field. Selects research problems to further the organization's objectives. Conceives and plans investigations of broad areas of considerable novelty and importance for which engineering precedents are lacking in areas critical to the overall engineering program. Is consulted extensively by associates and others with a high degree of reliance placed on his scientific interpretations and advice. Typically, will have contributed inventions, new designs, or techniques which are regarded as major advances in the field.	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of a very extensive and diversified highly engineering program, or, (b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives. Include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analyses so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance.	
Plans, organizes, and supervises the work of a staff of engineers and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual research or staff specialist may be assisted on individual projects by other engineers or technicians.	Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to Engineer VI, or, as individual researcher and consultant, may be assisted on individual projects by other engineers and technicians.	Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to Engineer VII, or individual researchers some of whose positions are comparable to Engineer VII, and sometimes Engineer VIII. As an individual researcher and consultant may be assisted on individual projects by other engineers or technicians.	
Senior or Principal Engineer, Division or District Engineer, Production Engineer, Assistant Division, District or Chief Engineer, Consultant, Professor, City or County Engineer.	Principal Engineer, Division or District Engineer, Department Manager, Director or Assistant Director of Research, Consultant, Professor, Distinguished Professor or Department Head, Assistant Chief or Chief Engineer, City or County Engineer.	Chief Engineer, Bureau Engineer, Director of Research, Department Head or Dean, County Engineer, City Engineer, Director of Public Works, Senior Fellow, Senior Staff, Senior Advisor, Senior Consultant, Engineering Manager.	Director of Engineering, General Manager, Vice President, President, Partner, Dean, Director of Public Works.

presentations, gives lectures, provides training, etc.

TABLE #1
ASCE GRADES / FEDERAL G.S. EQUIVALENTS

ASCE GRADES	FEDERAL G.S.
I/II	5-7
III	9
IV	11
V	12
VI	13
VII	14
VIII	15
IX	16 and above

State Codes for "Work Location"

(see page 1 of questionnaire)

1 Alabama
2 Alaska
3 Arizona
4 Arkansas
5 California
6 Colorado
7 Connecticut
8 Delaware
9 District of Columbia
10 Florida
11 Georgia
12 Hawaii
13 Idaho
14 Illinois
15 Indiana
16 Iowa
17 Kansas
18 Kentucky
19 Louisiana
20 Maine
21 Maryland
22 Massachusetts
23 Michigan
24 Minnesota
25 Mississippi
26 Missouri
27 Montana
28 Nebraska
29 Nevada
30 New Hampshire
31 New Jersey
32 New Mexico
33 New York
34 North Carolina
35 North Dakota
36 Ohio
37 Oklahoma
38 Oregon
39 Pennsylvania
40 Rhode Island
41 South Carolina
42 South Dakota
43 Tennessee
44 Texas
45 Utah
46 Vermont
47 Virginia
48 Washington
49 West Virginia
50 Wisconsin
51 Wyoming
52 Canal Zone
53 Guam
54 Puerto Rico
55 Virgin Islands

98 Outside the U.S. with APO
99 Outside the U.S. without APO